

PROPOSAL EVALUATION

Proposition 84 Integrated Regional Water Management (IRWM) Grant Program Implementation Grant, Round 1, FY 2010-2011

Applicant	County of Humboldt	Amount Requested	\$8,221,061
Proposal Title	North Coast Integrated Regional Water Management Plan, Proposition 84, Round 1, Implementation Grant	Total Proposal Cost	\$12,761,642

PROPOSAL SUMMARY

Nineteen projects are included in the proposal: (1) Ackerman Creek Habitat Restoration, (2) Bodega Bay HU Water Resources Management Project, (3) Camp Creek Habitat Protection-Road Decommissioning Implementation Project, (4) Copeland Creek Habitat Restoration and Steelhead Refugia Project, (5) Del Norte Agricultural Enhancement Program, (6) Gualala River Sediment Reduction Program, (7) Happy Camp Water Treatment System Upgrade, (8) HBMWD Blue Lake Fieldbrook Pipeline Support Retrofit, (9) Indian Creek Sewer Pipeline Crossing, (10) Lower Russian River Water Quality Improvement Management Project, (11) Mattole Integrated Watershed Management Initiative, (12) Mendocino Headwaters Integrated Water Quality Enhancement Project, (13) Mendocino Jumpstart Integrated Water Plan, (14) Nissa-kah Creek Fish Passage Removal, (15) Real-Time Weather Data for Irrigation Water Management, (16) Russian River *Arundo donax* Removal and Riparian Enhancement Program, (17) Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project, (18) Waterfall Gulch Transmission Main Project, and (19) Willow Creek Hwy 96 Stormceptor.

PROPOSAL SCORE

Criteria	Score/ Points Possible	Criteria	Score/ Points Possible
Work Plan	15/15	Economic Analysis – Water Supply Costs and Benefits	3/15
Budget	5/5	Water Quality and Other Expected Benefits	15/15
Schedule	5/5	Economic Analysis – Flood Damage Reduction	3/15
Monitoring, Assessment, and Performance Measures	5/5	Program Preferences	10/10
Total Score (max. possible = 85)			61

EVALUATION SUMMARY

The following is a review summary of the proposal.

Work Plan

The criterion is fully addressed, and supported by thorough, well presented documentation and sufficient rationale. The work plan contains an introduction that includes goals and objectives and how they relate to the adopted North Coast Plan. The Proposal provides a tabulated over view of nineteen projects which includes: project abstract, project watershed, technical peer review committee scores, project design status, map ID, permit status, plans and specs, implementing organization name, and disadvantaged community involvement for each of the nineteen projects. The Proposal's scientific and technical information supports the feasibility of the proposal. The work plan includes several maps which clearly illustrate the projects' locations and their watersheds. A discussion on synergies and linkages among projects and how they collectively implement the projects is included. The Proposal tasks include appropriate work item submittals and collectively implement the Proposal. The work plan provides a tabulated schedule for the current status of CEQA/NEPA and permit compliance and their anticipated dates of completion. The North Coast RWQCB's Basin Plan is addressed in various sections, tables, and attachments throughout the proposal.

Budget

The criterion is fully addressed, and supported by thorough and well-presented documentation and logical rationale. Budget for all nineteen projects include detailed cost information and the costs are reasonable and the budget categories are thoroughly supported. Proposal provides a basis of estimate for each individual project's cost. The items shown in the budget generally agree with the work items in the Work Plan and Schedule. The costs appear reasonable. The costs shown in the budget are supported with complete and thorough documentation.

Schedule

The criterion is fully addressed, and supported by thorough and well-presented documentation and logical rationale. The schedule is consistent and reasonable and demonstrates a readiness to begin construction or implementation of at least one project of the Proposal no later than six months after the anticipated award date. The schedule corresponds well with the tasks described in the work plan, and the majority of the projects are on a schedule that would have them start within six months of the award date.

Monitoring, Assessment, and Performance Measures

This criterion is fully addressed, and supported by thorough and well presented documentation and logical rational. This attachment includes a project performance measure table for each of the nineteen projects and identifies appropriate performance measures to determine the feasibility of the projects' objectives. Each individual project indicates an output and outcome indicators, desired outcomes, measurement tools and methods, and targets. Per proposal, the water quality monitoring is compatible with Surface Water Ambient Monitoring Program, and other types of monitoring will be conducted in accordance with the relative state agency's standards. Data collection will be in compliance with the State data protocols, and monitoring data from the suite of the projects will be incorporated into the Data Management Plan. Each project will determine data collection locations based on the relevant parameters. A summary of data analysis will be developed and will be shared with DWR, public and other pertinent agencies.

Economic Analysis – Water Supply Costs and Benefits

Only low levels of water supply benefits relative to costs can be realized through this proposal, as demonstrated by the analysis and supporting documentation. Although applicant provided a good

explanation of costs, some of the quantified benefits are inadequately justified (others are well described). After reviewer's adjustments, the quantified water supply benefits total \$2.2 million (M) in present value (PV). This represents a low level of benefits relative to total proposal cost.

The majority of claimed water supply benefit is provided by three projects: Projects (2), (8), and (16). The water supply benefit of Project (2) is claimed to avoid 100,000 gallons of diversion and 100,000 gallons of water purchases per year, at a total savings of \$24,700 per year. This works out to over \$40,000 per AF – this is an extremely large value per acre-foot and needs to be explained carefully. Project (11) has a similar category of avoided cost of water supply valued at \$.06 per gallon (pg. 25 of Att. 7), resulting in an annual savings of \$5,400 per year for 90,000 gallons (effective cost of over \$19,000/AF). The reviewer determines that such large costs per unit are not adequately justified, and has removed them from the quantified benefits.

Project (1), (2), and (11) claim environmental flow benefits from very small amounts of water (only 1-2 AF per year for each, which could be less than a gallon per minute, depending on the duration of additional flow). It is not explained how such a tiny increase in flow could make any difference.

Project (2) also claims an avoided treatment cost of \$30,000 per year for reducing leaks by 75,000 gallons per year (an effective treatment cost of about 40 cents per gallon or \$130,000 per AF). The reviewer could find no justification for this value. All three of the WS benefits for Project (2) appear to be inadequate or unsupported, and are removed from the quantified benefits.

WS benefits of Project (16) are based on the avoided evapotranspiration of the plant relative to native vegetation. Based on this and the acreage to be removed, 570 AF per year of water will be left in the Russian River channel. Valued at \$75 per AF, an estimate of the avoided cost to acquire water, the annual benefit is \$0.49 M in PV.

WS benefits of Project (8) are based on shortages and repairs resulting from earthquake damage to the existing pipeline. FEMA's Benefit Cost Analysis (BCA) analysis is used to estimate the benefits, which are dominated by avoided water service loss and avoided risk of fire damage during outage. The model calculations are not provided, but summary results are included in an attachment. Reviewer is unable to verify the calculations, and some of assumptions are not well explained, possibly because they are built into the BCA model. The duration of loss of water service is based on discussions with local staff and engineers, and the cost is apparently a calculation of the BCA model.

Project (18) would replace a leaky line with new pipe serving Fort Bragg. The main benefits are avoided leak detection and repair, power savings because less water would be required from a pumped source, and environmental flows. \$4200 per year is the avoided leak repair cost stated in the text (no reference provided, but stated to be based on city records). The electricity cost savings are stated as assumptions – reviewer could find no backup calculations. Environmental flows are calculated as the reduced Noyo River use (16.8 AF/year) times a water acquisition cost of \$75/AF.

Economic Analysis – Water Quality and Other Expected Benefits

High levels of water quality and other benefits relative to costs can be realized through this Proposal, and the quality of the analysis and supporting documentation demonstrates these benefits. All nineteen projects have water quality or other benefits. The applicant has estimated quantitative benefits for eighteen of the nineteen projects. Important categories of water quality/other benefits include: avoided

costs from stream sediment; passive use values of salmonids population improvement; avoided costs of water treatment; cultural value of resources; passive value of forest biodiversity; and other avoided costs.

Quantified values depend substantially on three categories: passive use values for salmonids, estimated at \$2,000 per fish per year (total of \$17 M in PV), the value of sediment removed or avoided, estimated at \$11.28 per ton (\$0.74 M in PV), and the passive value of forest diversity (total of \$0.42 M in PV). By far the largest quantified benefits (over \$17 M) occur in Projects (6) and (11), based largely on their estimated contributions to passive values for Salmonids.

Applicant provides a well documented framework of economic studies to justify unit values for its benefits calculations. For example, applicant cites several studies of passive values per escaping adult salmonids, ranging from \$400 to nearly \$7,000 per fish. These are based on survey results, and clearly depend crucially on survey methodology and public perceptions of the current state of salmonids populations (as the applicant acknowledges). Based on the cited economic studies, the value per fish is justifiable. Less clear is the justification of the population numbers claimed to result from the projects. The technical reviewer considered the fish increase numbers to be highly uncertain, though believed that the increases used for the analysis were plausible.

The avoided costs from sedimentation is based on a 2008 USDA study that considered a number of direct costs from sedimentation, including effects on road culverts, drainage ditches, irrigation systems, water treatment, and recreation. (This study does not appear to include passive use values, so there is no obvious double-counting).

Eight projects included a quantified estimate of the passive value of forest diversity. The analysis multiplies the acreage restored or improved by the projects by a unit passive value (\$120 per acre) derived from a recent study for coniferous forests in North America. It is not clear to the reviewer that a value that appears to apply to the total passive value of forest should be applied to the increment of improvement that would result from the restoration activities in this proposal. However, this is a relatively small share of the quantified benefit. Other benefit categories are either not quantified or represent a very small share of the quantified benefit. In general, these are well described.

In summary, water quality and other benefits are described well, and quantified benefits, even with adjustment, are large relative to proposal cost. Quality of description is excellent, and the methodology and documentation of economic values are excellent. In some instances, speculative data is used to calculate benefits. However, based on the nature of this project, this data is appropriate and understood to be best available information. For this reason, the level of actual benefits may vary but are still deemed highly plausible based on the applicants' analysis. Non quantified benefits are well described and likely to be substantial enough to offset reviewer's concerns about some of the quantified values.

Economic Analysis – Flood Damage Reduction

Only low levels of flood damage reduction (FDR) benefits relative to costs can be realized through this proposal, as demonstrated by the analysis and supporting documentation. The FDR benefits are described but no data exist to provide quantitative analysis. Benefits only accrue from two small projects, so the total benefits are likely to be very small relative to the total proposal cost.

Projects (13) and (19) are evaluated qualitatively for potential FDR benefits. Project (13) would use a range of low-impact development techniques such as bioswales to reduce pollutants and sediment in stormwater. These activities are expected to reduce the velocity, peak flow, and sediment/debris entering creeks during

storm events, reducing the risk and intensity of flooding. Project (19) would install an interceptor pipe and detention basin and reduce the risk and damage of flooding to a commercial area on Highway 96. The basin would also smooth out the peak discharge of stormwater into Willow Creek.

Program Preferences

The criterion is fully addressed, and supported by thorough and well-presented documentation and logical rationale. The proposal thoroughly documents the breadth and magnitude of the program preferences to be implemented in the North Coast Region. The proposal includes several projects that meet the long term drought preparedness priority through improvement of agricultural irrigation efficiencies, water conservation, and reduction of long term water use. The proposal includes multiple projects that address issues related to critical water quality and water supply of disadvantaged communities in North Coast Region. The proposal also demonstrates a significant degree of certainty that the proposed projects will collectively implement additional program preferences including: Include regional projects or programs, Effectively integrate water management programs and projects within hydrologic region, Effectively resolve significant water-related conflicts within or between regions, Effectively integrate water management with land use planning, Use and reuse water more efficiently, Climate change response actions, Expand environmental stewardship, Practice integrated flood management, Protect surface water and ground quality, Improve tribal water and natural resources, and Ensure equitable distribution of benefits.